



Q S X
P E

*Port Elizabeth Branch of the
South African Radio League*

P.O.Box 462, Port Elizabeth. 6000.



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SA

Port Elizabeth Branch

AGM AJV

THE ANNUAL GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE WILL BE HELD AT THE ALOES SCOUT HALL, WALMER ON SATURDAY 17th SEPTEMBER 1983 AT 3.30p.m.

The Agenda is as follows:

1. Welcome and Apologies.
2. Minutes of A.G.M. Sept. 1982.
3. Adoption of Chairman's Report.
4. Adoption of Financial Statement.
5. Election of Office Bearers.
6. Presentation of Trophies.
7. General.

DIE ALGEMENE JAARVERGADERING VAN TAK PORT ELIZABETH VAN DIE SUID-AFRIKAANSE RADICLIGA SAL BY DIE ALOES SCOUTSAAL WALMER OP SATERDAG 17 SEPTEMBER 1983 OM 3.30 n.m. PLAASVIND.

Die Agenda is soos volg:

1. Welkom en Verontskuldigings.
2. Notule van AJV September 1982.
3. Voorsitter se Jaarverslag.
4. Finansiëleberig.
5. Verkiesing van Komitee.
6. Presentasie van Trofee.
7. Algemeen.

ANNIAL GENERAL MEETING.

Once again, the Annual General Meeting is taking the form of a social get-together. The formalities will be dispensed with as quickly as possible, so that we can get on with the real business of the afternoon! We will be having a super braai, with a bumper donation of meat from Peet van Heerden ZS2BX of Nieu Bethesda. Other meat, bread rolls, ice-cream, colddrinks, plates and cutlery etc will be provided by Dick ZS2RS. Any donations of salads will be gratefully accepted. Please bring your own liquid refreshment and glasses. This is a FAMILY OCCASION so please bring the wife and kids along. The VENUE is the ALOES SCOUT HALL, the entrance being in Villiers Road (close to the turn-off to the Walmer Drive-In). There will be some-one on 2 meters to help those unfamiliar with the area.

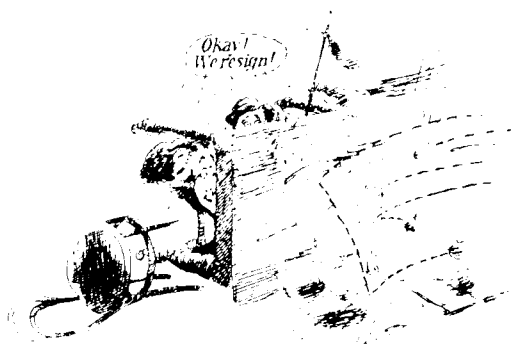
ROLL UP, ROLL UP, WE WOULD LOVE TO SEE YOU ALL THERE.

COMMITTEE MEMBERS.

Chairman: Dick ZS2RS (322111)
Secretary: Marge ZS2CB (303498)
Projects: Lionel ZS2ED (321770)
P.R.O. Fred ZS2E (30422-31419)

Vice Chairman: Trevor ZS2AE (321746)
Treasurer: Brian ZS2AB (303498)
Special Events: Colin ZS2AO (312471)
Awards: Attie ZR2DY (325349)

2BX-FB - ZS2CB and ZS2AB.



Editorial

It is not too often that an editorial appears in QSX-PE, mainly because I don't usually have much to say, and because I try to find other items which I think will be of more interest to members and readers. This is not always too easy and I often wonder how many people just toss the envelope with QSX away every month. Everyone knows the old saying: "You can't please all of the people all of the time" - SO what do YOU want to see in QSX-PE? We try to provide technical articles - here I would like to say a very big thank-you to those who have provided the original articles during the year - also articles of general interest for those who have got past or not got to the stage of building and experimenting and items of interesting news about members. Many of our members own computers of one form or another - what about a page on computers or programmes? How about letting us have any original programs of your own? How about news of your trips overseas? Everyone loves to read those - although Ol' Green Eyes might get busy! What about articles in Afrikaans? We have a number of Afrikaans members and readers - but these articles are in very short supply, even in the newsletters of other Branches. As you may have noticed we do take articles from other Branch newsletters, and the same is done with QSX-PE. I must say that I enjoy compiling the newsletter and with YOUR help we can make it better. Thanks again for those who helped in the past and to those who are going to help in the future. I just know you will!

NEWS

We would like to wish all our Jewish members and friends a very Happy New Year and well over the Fast.

CONGRATULATIONS: To Piet Fourie who recently passed his Morse Test and is awaiting his ZS call sign. Also congratulations to Pete Smith who is now ZS2PJ and Kevin Eastwood who is now ZS2KE. Pete has been bitten by the DX bug. Good luck and DX to the three of you.

NAVEX OUTING: On Saturday 3rd September, the Grahamstown Flying Club organised very efficiently a Navigation Exercise and once again, members of the Branch assisted with communications, helped out by various other hams as well. Those who took part were ZS2RS Dick, ZS2AB Brian, ZS2AW Dudley, ZS2Z Alan, ZS2SM Jack,
Many thanks for your efforts.

SOUTH AFRICAN AMBASSADORS: Mike ZS2MJ and June ZS2JJ well qualify for this title, in view of the fact that during the past month they travelled over 7000 km over large parts of South Africa showing friends of theirs from Canada the sights of our land. I am sure that the trip was enjoyed by all, although Mike says he doesn't want to see a steering wheel for a long time.

Subscriptions

These are unfortunately now overdue, and although we as a Branch would hate to lose your valued membership and friendship, the Constitution states that your name will be taken off the register at Headquarters if your subs are not paid within two months of the closing date, which is the 30th June. If you do not intend to renew your subs with this Branch or even not at all, please just drop us a line so that we can keep our and Headquarter's records up to date.

Chairman's Report

It is some ten years since Port Elizabeth hosted a National AGM and we now find ourselves on the threshold of such an event once again. The next six months are going to be occupied with planning, co-ordination and more planning. The efforts and co-operation of every available local member will be needed. Now, as never before, the members of the Port Elizabeth Branch are needed to be united into a co-operative smooth running body. Can we pull it off? Can we organise a meeting to be proud of? Only you the members can answer this. If the past year is anything to judge by, then the answer is surely yes.

The Port Elizabeth Branch has grown from strength to strength as is proved by membership figures. We have enjoyed a healthy influx of new members both from other divisions and locally. The technical classes conducted by Brian ZS2AB have also resulted in many new applications. Sincere thanks to him for his many hours devoted to his weekly class.

On the financial front, our Balance Sheet tells its own tale. We are as financially stable as we could wish to be. Expenses have been kept to a minimum but we have however purchased such items as crystal filters etc which were found to be necessary for the efficient operation of our repeaters.

Whilst on the subject of finance, this year for the very first time, members have been asked for a contribution over and above their subs. The response however has been disappointing. It was felt that a contribution of R2. per month per member was within the reach of everyone. A 100% response to this request would eliminate the need for further fundraising. Unless we enjoy a last minute boom, we shall have to seriously consider fundraising soon. Several members have been involved in providing communications for navigational exercises held by the Algoa Flying Club and also for the Winterberg Enduro. These events resulted in contributions to our AGM fund.

During the year we also participated in JOTA and CQ HOU KOERS. All these events result in favourable publicity for our hobby. 1984 once again is the year of the Hobbies Fair. A stout effort is called for to ensure good exposure.

Attendance at Branch meetings can always be improved, however considering our large country membership, attendance is satisfactory. The meetings have provided a balanced fare of lectures and films and thanks are due to several members for their assistance. It is encouraging that talks can be provided from within our ranks where there is a wealth of untapped knowledge.


Once again our newsletter QSX-FE deserves mention. Last year I said that I felt we had one of the best publications in the League. The last twelve issues have not induced me to change my mind. A big thank you to Marge ZS2OB who efficiently compiles and edits this over and above her secretarial duties. Thanks also to our printers, Messrs Instant Printing for their patience, co-operation and low costs.

Our Committee has once again more than come up to scratch and every member deserves thanks for their contribution to the smooth running of the Branch.

The repeater situation remained unaltered during the past year, but this will change soon with the imminent air testing of the proposed Cockscomb unit. Thanks to Vice Chairman Trevor ZS2AE and son Christopher who make a fine father and son team.

To you the members, who constitute the Branch, my sincere thanks for your support and trust in the Chair and Committee, for without you we are nothing. Your continued support during the forthcoming year will ensure that 1984 will be our best year yet.

Very best 73,



R. W. SCHÖNBORN. ZS2RS

CHAIRMAN

MINUTES OF THE ANNUAL GENERAL MEETING OF THE PORT ELIZABETH BRANCH OF THE SOUTH AFRICAN RADIO LEAGUE HELD AT THE ALOES SCOUT HALL, WALMER ON SATURDAY 18th SEPTEMBER, 1982.

PRESENT: 60 members and visitors.

APOLOGIES: Mike Bosch ZS2FM.

The Chairman welcomed everyone to the meeting and extended a special welcome to Wolfie ZS2WG the newly-elected Chairman of the Algoa Branch and his xyl, and to all the wives and children of members. He wished everyone an enjoyable time at the get-together after the meeting.

MINUTES: The Minutes of the Annual General Meeting held 18th September, 1982, having been circulated in QSX-PE were taken as read, proposed by Cyril ZS2KX and seconded by Lionel ZS2DD.

CHAIRMAN'S REPORT: The Chairman's report was published and circulated in QSX-PE, but Dick said he wished to re-iterate a few points. He was very pleased to see the upsurge in Branch membership and felt the Branch would go from strength to strength. The monthly meetings had been well attended as had the social get-togethers, especially the trip to Grahamstown and the travelling supper. The Hobbies Fair and JOTA stations had been well run and enjoyed by all with help from the Algoa Branch for the Hobbies Fair. The Branch was now running Technical Classes at no cost and thanks were due to Brian ZS2AB the Lecturer, who had spent many hours preparing the notes. The Finances were in a very healthy state, and thanks were due to the late Frank ZS2CY who had been a faithful Treasurer and member of the Committee for many years. Members were asked to stand in a minute's silence in his memory. Dick also thanked Brian ZS2AB who had taken over the duties of Treasurer after Frank's illness. Marge ZS2OB and Brian ZS2AB were thanked for their work on the newsletter QSX-PE which had maintained its high standard. Dick thanked the outgoing committee for their help and co-operation during the past year and wished the new Committee a most successful year. He also thanked all the members of the Branch for their interest, for without them the Branch could not exist.

FINANCE: TREASURERS REPORT: Brian ZS2AB who had very recently taken over as Treasurer, reported that due to an eye injury sustained by our Auditor Gus ZS2MC, it had not been possible to compile the full annual financial statements. An audited statement was tabled. The savings accounts totaled R2928, income for the year was R1950, of which R700 was donations for the 1984 ATM fund. Various other points were made and Brian said that if any out-of-town member wanted a copy of the final statements, they would be sent to them.

ELECTIONS: At this stage the Chairman said that he had come to the end of his term of duty and vacated the chair. According to Branch tradition, the chair was then taken by Cyril ZS2KX who thanked Dick for all his hard work during the past year and then called for nominations for Chairman for the following year. Dick ZS2RS was proposed by Trevor ZS2AE and seconded by Bette ZS2LO. There being no further nominations, Dick was welcomed back to the chair. Cyril congratulated him and wished him a successful year ahead with much help and co-operation from the new Committee.

Nominations for the rest of the Committee were then called for and the results were as follows:

Trevor Scarr ZS2AE	proposed by ZS2RS Dick
	seconded by ZS2OB Marge
Brian Weller ZS2AB	proposed by ZS2DD Lionel
	seconded by ZS2LO Bette
Marge Weller ZS2OB	proposed by ZS2KX Cyril
	seconded by ZS2EQ Fred
Colin Ashwell ZS2AO	proposed by ZS2AB Brian
	seconded by ZR2DY Attie
Lionel Coombe-Davis ZS2DD	proposed by ZS2OB Marge
	seconded by ZS2AE Trevor
Attie Barnard ZR2DY	proposed by ZS2AO Colin
	seconded by ZS2TJ Trevor
Fred Bonthuys ZS2EQ	proposed by ZR2DY Attie
	seconded by ZS2PG Basil

There were no further nominations and it was decided that as all nominees were prepared to accept office, the Committee would consist of eight and not seven members as in the past. The Chairman welcomed all the new Committee and said that the positions would be decided at the first Committee meeting.

There being no further business, the meeting was closed. The Chairman invited all to enjoy themselves and partake of the braai and salads. He thanked all the ladies who had provided salads. Videos were provided to entertain the children of all ages, while the braai was prepared. A good time was had by all.

sgd:
R.W. Schönborn ZS2RS
Chairman

sgd:
M.T. Weller ZS2OB
Secretary

Treasurer's Report

Financial activity in the Branch has shown the usual undulations, with most of the money movement taking place from about July to September as the majority of members renew their subs promptly. The AGM '84 fund really got under way during this financial year, and, with a target of R2500, it was most gratifying to see that the response from many people was payment of the full amount requested in one lump sum. This made the paperwork very much easier. Special thanks must go to a few of our members who have made donations considerably larger than the R25 requested, both in cash and saleable goods.

The assistance by members and non-members with communications for various events during the year resulted in donations being made by the organizations concerned and our thanks go to all who made this possible. I should like to record special thanks to the local representatives of Nashua copiers, who installed one of their photocopying machines at my house at no charge, together with large quantities of paper and other supplies, to enable me to make up the technical notes for the classes, and charged us only a very nominal fee per copy at the end. This resulted in a very big saving compared with the costs of normal printing. Finally, an appeal to those who have not as yet assisted our AGM fund. Please do so as and when you can, as your efforts will greatly help us to hold a memorable national AGM here in 1984.

Winterberg Enduro

Or How to Relax and Unwind (your antenna wire).

The Winterberg Enduro, held on the 13th August was one of a series of national events held throughout the country for testing the skills of off-road motor cyclists. It is similar to car rallying except that the terrain is much more rugged. Port Elizabeth is one of the few places where the countryside lends itself to events of this kind. Where other centres have the riders going round and round over the same short course to rack up mileage we in the Eastern Cape can lay out a non-stop route of up to 370 kilometres without using any known roads at all.

The route this year extended from the Hypermarket near Bridgemeade through to Rocklands and right up the Elands River Valley, criss-crossing over 40 farms, many small streams and climbing over some spectacular mountains in the process. This is where we amateurs came in as the organising committee of the Rover Club had approached us over two months ago to provide communications along the route. This proved to be a real stinker as some of the spots chosen for the marshals, fuel depots, etc. were in some incredibly inaccessible areas, both physically and electronically.

A meeting was held beforehand in which members of the local "off-road club" were to provide 4-wheel-drive transport for amateurs whose cars were not suitable for the terrain. At the same time an educated guess was made as to which spots would be suitable for V.H.F. and which would have to use H.F. Christ ZS2S and Colin ZS2AO made some exploratory trips out into the mountains to check out some of the doubtful areas.

Due to a shortage of amateurs with portable H.F. gear a compromise was made in which certain stations with 2m only would relay to those who could reach back to the control point via H.F. or V.H.F. As it turned out, Clive ZS2RT, who was about 100 km out and right on top of some very high ground could work back to control on 2m with ease while a lot of stations quite a bit closer but down in valleys had to use 40m to communicate.

The day dawned bright and sunny and about 9 hams set out at sparrow-twit for their various stations. A total of 4 hams would take it in turns to operate from their homes and/or the control centre at the Hypermarket. The Rover Club had some rather amusing names for these locations, such as Tar Road, Rocky's Horror, Ritchie's Romp, Gush's Gully, Hang-em-High (Clive's location), Hagars Hole, Stonehenge (a rock quarry) Bus Stop, etc. The last one named thus because it was near a doubledecker bus parked miles from anywhere in some 4-wheel drive country. Dick ZS2RS found out too late that Stonehenge was only suitable for Off-road vehicles and not for sedan cars as he had been led to believe. Nothing daunted, he pressed on with his Chev station wagon and now has honorary membership in the off-road club.

Chris ZS2S had the furthest to go and had to travel half-way to Steytlerville before heading south into the mountains where he and his family camped out the night before. Waldie ZS2WM arrived at his designated spot and shortly afterwards, bikes began arriving with no sign of the clock marshals. A search revealed them manning a spot about 40 metres away due to faulty instructions. In fact, the first half of the day was spent in getting to the correct location, setting up dipoles, yagis, etc. Colin, ZS2AO arrived early and set up his station near a river crossing with some nice shade trees to sling antennas over. Just after getting comfortable, the marshalls arrived and decided to move camp about 100 meters on to open ground with no shade. The 40m antenna was taken down and the move made under protest (it was already very hot).

Luckily a lone telephone line which was slung over the valley passed directly overhead and with the help of a stone and a long piece of string the 40m inverted vee was hauled up again. This proved a blessing as 2m contact was not reliable from this new site (even with a 5-el yagi) Wolf ZS2WG set up camp only a short distance from this site, both of which were up the Wide Horizon road near the Sand River Dam area. Gus ZS2MC was the furthest point along this road and came through well on 40m. As the day wore on, message passed thick and fast with all stations getting through by hook or by crook. Rob ZR2EA and Andy ZS2G did sterling work in relaying messages through to Clive ZS2RT from their isolated kloofs.

While Clive was nearly blown off his perch on the mountain top by gale force winds, those down in the valleys sweated out a 30°C heatwave, complete with dust. By late afternoon the various sites were littered with broken bikes, dejected riders trying to organise a lift back and literally hundreds of brown bottles (empty). It only remained for the hams to ensure that all riders were accounted for before packing up camp and returning to control or home.

Stories abounded of the confusion amongst the riders as they fell off, got hopelessly lost or were misdirected by groups of waving blacks onto tracks that led to Nowheresville. It was nightfall before the last ham had returned to control and/or home and the last thought on their minds was to sit down at the rig and call CQ. All things considered, it was a most successful communications exercise with all stations getting their messages, times, etc. back to control in a most efficient manner. Although to outsiders listening in it must have sounded like the Goon show at times - the scorers at main control did not know that Bravo meant 'B' in radio language. When you consider that the local amateurs had also provided comms for the Algoa Flying Club only the week before then the gathering together of such a large number of operators for the Enduro shown the latent enthusiasm there is for this sort of activity.

The organisers were full of praise and thanks must go to the following amateurs who took part, Chris ZS2S, Rob ZR2EA, Andy ZS2G, Clive ZS2RT, Wolf ZS2WG, Waldie ZS2WM, Gus ZS2MC, Dick ZS2RS, Colin ZS2AO, Marge ZS2OB, Brian ZS2AB, Cliff ZS2AP and Rob ZS2RE. The last four named took it in turns to man the control centres.

Members of both the Algoa and Port Elizabeth branches took part and it is hoped that the organisers of the Enduro will make a sizeable contribution towards the 84 A.G.M. Fund in the near future.

See you at the next Enduro. Colin Ashwell ZS2AO.



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Some Aspects of the Balun Problem

By Walter Maxwell,* W2DU

PART TWO.

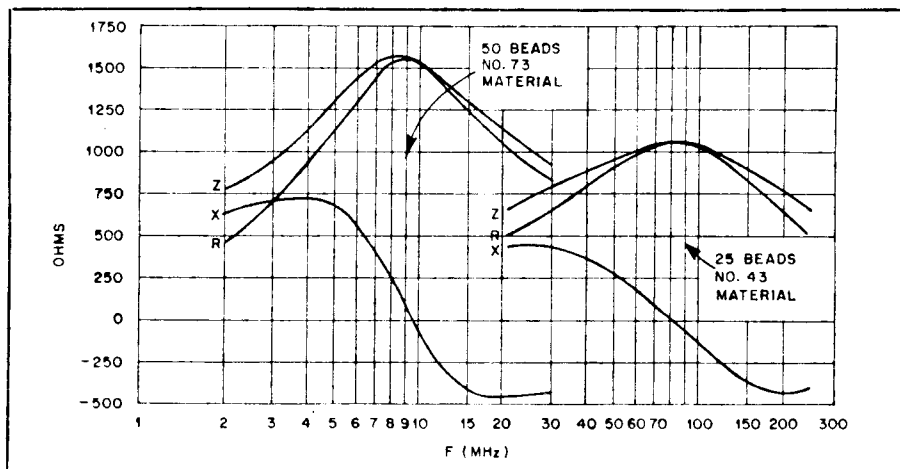


Fig. 3 — Graph of frequency vs. series impedance of coaxial-balun shield outer surface.

Effect of No Balun on Measurement Accuracy

It should be obvious that obtaining accurate impedance measurements of a dipole antenna is difficult. When a transformer-type balun is used to avoid errors caused by I_3 , impedance-transfer errors obscure the true impedance at the antenna terminals. If the balun is omitted, the true impedance is obscured by the impedance of arm 3 shunting one half of the dipole. Since there is no practical way of determining the impedance of arm 3, the true antenna impedance and SWR cannot be calculated from the measured data.⁴

We should bear in mind that for any given physical length of feed line, the *electrical length* of the coaxial braid surface carrying I_3 is not the same as the inside conductors carrying I_1 and I_2 . This is because the dielectric constants and the propagation-velocity factors are different. For example, the velocity factors for polyethylene and Teflon dielectric coaxial

cable are 0.659 and 0.695, respectively. If the outside surface of the coaxial cable is bare, the velocity factor for the outer shield carrying I_3 approaches 0.95. However, the usually thin outer covering of polyvinylchloride (or sometimes Teflon) will reduce the antenna-current velocity factor to a value somewhat less than 0.95.

Effect of No Balun on Antenna Performance

From an operational viewpoint, I_3 itself is usually not detrimental to the performance of simple dipoles for 160 through 40 meters. In addition, I_3 alone does not cause TVI, but radiation from external feed-line current can cause severe distortion in the radiation patterns of directive antennas, such as Yagis and quads. Unless a gamma match or other type of unbalanced input-matching scheme is used, all beam antennas with balanced input terminals require a balun if the optimum per-

formance of the antenna system is to be achieved when fed with coaxial cable. For example, when a balun is not employed, the feed line and tower together become a separate, nondirectional antenna. This produces unwanted vertically polarized radiation that fills in the rearward null in the beam pattern, destroying the front-to-back ratio. The tower radiates along with the feed line, because currents are induced through coupling between the feedline and the tower.

The Choke Balun

Although many baluns embody some form of coupling transformer, an alternative is to insert an rf choke in the outer conductor of the feed line. This presents a high impedance to I_3 without affecting the internal currents. Advantages of this method are the lack of limitations on either maximum SWR or power handling. In addition, there is no impedance-transfer error that plagues transformer types of baluns (causing a skewing of SWR and impedance plots), because the choke balun has no coupling transformer — the feed line goes straight through to the antenna terminals!

The simplest choke balun is formed by coiling up a few turns of the feed line, starting where it connects to the antenna terminals. In the frequency range of 14 to 30 MHz, several turns of feed line coiled in an 8-inch diameter form an inductor with enough series reactance to minimize I_3 and practically eliminate feed-line radiation. Unfortunately, this form of choke (with an air core) is not practical below 14 MHz, because too much coiled-up feed line would be required to reduce I_3 to an acceptable level.

A word of caution is in order when the choke balun is used on tower-mounted antennas: The choke coil should be placed directly at the feed terminals of the driven element. If the coil is placed away from the feed terminals, any portion of feed line between the terminals and the coil is coupled to the boom or mast, which in turn is coupled to one arm of the driven element. The result — imbalance of currents in the driven-element, pattern skewing and tower radiation.

The frequency range of the choke balun can be extended to well below 2.0 MHz by using a core of high-permeability ferrite instead of air. With higher core permeability, the choke inductance increases dramatically, thereby retaining the high reactance needed to minimize I_3 at the lower frequencies. Of great importance, no core saturation occurs at high-power levels in the choke balun (a serious problem in transformer-type baluns), because the core excitation is low level, produced only by I_3 and not by the high internal current that feeds the antenna.

At my suggestion, Reisert made his choke balun with a Q1 material ($\mu = 125$ to 400) ferrite toroid, winding 9 turns of RG-141/U coaxial cable on the core for use from 14 to 30 MHz.⁵ However, his 12-turn balun appears to provide marginal performance at 4 MHz. The problem stems from the toroidal winding arrangement. It is difficult to get a tight wrap of coaxial cable around the toroid, resulting in a coupling loss that makes it impossible to utilize the full value of the core permeability.

Balun Construction Using Ferrite Beads

I have obtained greatly improved choke-balun performance by placing several ferrite beads or sleeves of even higher permeability around the coaxial feed line.⁶ For readers who wish to build this simple coaxial balun, bead materials of various size and rf characteristics are available that dramatically increase both the reactance and resistance of a conductor. (Adding resistance to the reactance in this circuit improves the operational bandwidth of the balun with no increase in loss.) In general, the impedance of the outer coaxial braid surface increases almost proportionately with the number of beads placed over it. A combination of 50-ohm teflon-dielectric RG-303/U cable (or RG-141/U, with the fabric covering removed) and ferrite beads having an ID of 0.197 in. and a length of 0.190 in., form a superb, compact, wide-band balun.⁷ While the two inner conductors of the coaxial cable remain unaffected, the beads introduce a high impedance in series

with the braid outer surface. This configuration effectively isolates the external output terminal of the feed line from that at the input end.

A test balun was made by slipping 300 no. 73 beads ($\mu = 2500$ to 4000) over a piece of RG-303 coaxial cable. The impedance of the outer conductor of the cable measured $4500 + j3800$ ohms at 4.0 MHz; $15.6 + j13.1$ ohms was measured utilizing a single bead. For practical baluns (less than 12 in. long, including connector) used from 1.8 to 30 MHz, use 50 no. 73 beads (Amidon no. FB-73-2401 or Fair-Rite no. 2673002401-0); for 30 to 250 MHz, use 25 no. 43 beads ($\mu = 950$ to 3000, Amidon no. FB-43-2401 or Fair-Rite no. 2643002401). No. 64 beads ($\mu = 250$ to 375) are recommended for use above 200 MHz, but I have not yet experimented with them.⁹ The coaxial cable need only be long enough to hold the beads, and to access the end connectors.

The graphs in Fig. 3 show the measured values of series resistance (R), reactance (X) and impedance (Z) versus frequency of the outer braid surface of a choke balun, for both the 25- and 50-bead types. With either balun, I_3 will be negligible. Using a balance-measuring technique learned from my RCA antenna-lab colleague, O. M. Woodward, the output terminal imbalance relative to ground of these baluns is undetectable using an HP-410C rf VTVM.⁹

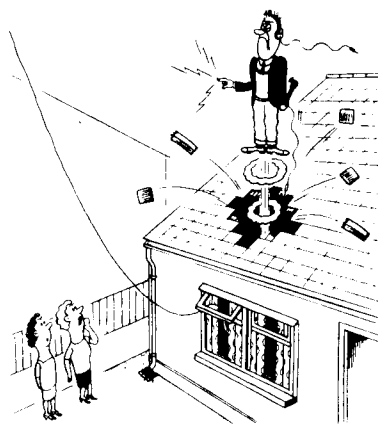
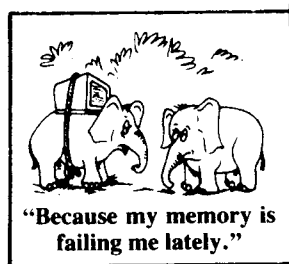
At legal input levels, no power-handling problems will arise using these baluns, because the cw power-handling capability of the cable is 3.5 kW at 50 MHz, and 9 kW at 10 MHz.¹⁰ Any suitable connector that will mate with the load end of your feed line can be used at the input of the balun, and the balanced-output terminals may simply be pigtailed formed by the inner and outer conductors of the feed line. Methods for connecting the output terminals to the antenna are left to the ingenuity of the reader.

To emphasize simplicity, what vhf antenna buff wouldn't delight in dumping his unwieldy, frequency-sensitive, half-wavelength line balun? He can replace it by simply putting some ferrite beads on the last few inches of his coaxial feed line!



Notes

- ¹J. Nagle, "RF Impedance Bridge Measurement Errors and Corrections," *Ham Radio*, May 1979.
- ²G. Hall, ed., *The ARRL Antenna Book*, 14th ed. (Newington: ARRL, 1982), Chapter 5, p. 5.
- ³J. Reiser, "Simple and Efficient Broadband Balun," *Ham Radio*, Sept. 1978, p. 12.
- ⁴W. Orr, "Multiple Dipole for Portable Use," *Ham Radio*, May 1970, p. 14.
- ⁵See note 3.
- ⁶D. DeMaw, *Ferromagnetic Core Design and Application Handbook* (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1981), Chapter 4.
- ⁷mm = in. \times 25.4.
- ⁸Ferrite bead materials are available from Amidon Associates, 12033 Otsego St., N. Hollywood, CA 91607, or Fair-Rite Products Corp., 1 Commercial Row, Wallkill, NY 12589.
- ⁹O. Woodward, Jr., "Balance Measurements on Balun Transformers," *Electronics*, Sept. 1953, p. 188.
- ¹⁰*RF Transmission Line Catalog and Handbook*, No. TL-6 (Wallingford, CT: Times Wire and Cable Co., 1972).



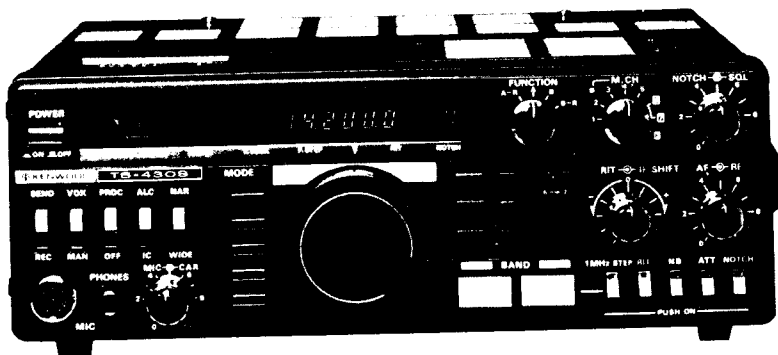
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- * General coverage receiver 150kHz-30MHz.
- * Dual VFO's - built in.
- * 8 Memory channels.
- * Memory scanning.
- * Lithium battery memory back-up
- * Programmable band scan.
- * I.F. Shift
- * Notch filter.
- * Speech processor.
- * All mode squelch circuit.
- * Noise blanker
- * R.F. Attenuator.
- * Vox circuit.

- * PLUS A HOST OF OTHER GREAT FEATURES.
P.E. CAR RADIO & COMMUNICATIONS

OPTIONAL ACCESSORIES

PS-430
DC Power Supply

SP-430
External Speaker



SP-40
Mobile Speaker



AT-130
Antenna Tuner



INCORPORATING

SUMMIT DISTRIBUTORS

662 MAIN STREET
P.O. BOX 500
PORT ELIZABETH 6000

PHONE:
54 4545
54-7223



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USE YOUR CREDIT CARD

KENWOOD

SOUTH AFRICAN RADIO LEAGUE - PORT ELIZABETH BRANCH.

STATEMENT OF INCOME AND EXPENDITURE FOR THE PERIOD 1 JULY 1982 to 30 JUNE 1983.

INCOME.

EXPENDITURE.

<u>Opening balances 1/7/82</u>		
Savings Account	240.89	
Spec. Savings Account	235.62	
Transmission Account	4.15	
AGM Fund Account	447.25	
Fixed Deposits(3)	<u>2000.00</u>	2927.91
Headquarters share of subs/ent. fee		1207.00
Branch share of subs		540.00
Social members fees		22.00
Subs received in advance for 1983/84		224.00
Interest on all accounts & fixed dep.		351.07
Sale of Technical Notes		91.00
Sale of technical books		51.00
Sale of QSL stickers		38.20
Sale of logbooks		7.50
Delegates Trav. Expenses (Refund)		136.36
Refreshments		7.23
Donations (misc.)		30.00
Donations (AGM fund)		950.50
Dinner/dance		56.00
P.E. Branch Award		.50
Subs Overpaid (R.Drescher)		18.00

Headquarters share subs/ent fee	1204.00
Headquarters Repeater/beacon licences	80.00
ZS2PE licence	10.00
Headquarters QSL Stickers	46.00
Headquarters Books	122.00
Electricity (Ladies Slipper)	95.87
Delegates Travelling Expenses (advance)	250.00
Photocopies for technical notes	130.65
Equipment Insurance (Hobbies Fair)	25.25
Printing	31.76
Florist	10.00
Postage (S42A QSL Cards)	73.50
Postage (general)	12.30
Purchase of Crystal filter (inc. GST)	239.45
Navex fuel costs	20.00
Refund Overpaid subs (C. Thwaites)	10.16
Refund Overpaid subs (R. Drescher)	18.00
Typewriter Repair	15.75
Correction of F.D. interest by U.B.S.	32.19
Stationery	28.80
P.O.Box 462 rental	7.50
Dinner/dance	54.00

Balances at 30/6/83

Savings Account	330.11	
Spec. Savings Account	318.39	
Transmission Account	3.27	
AGM Fund Account	1399.32	
Fixed Deposits (3)	<u>2000.00</u>	
		<u>4051.09</u>

R 6658.27

R 6658.27

Audited and certified correct:

B.A. Weller ZS2AB

B.A. Weller ZS2AB.
Hon. Treasurer.

D.W.O. Winter ZS2MC

D.W.O. Winter ZS2MC.
Hon. Auditor.



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